

Date: Monday, 09/02/2009 12:40:52 PM  
User: Julie Dawson

## Process Sheet

<b>Customer</b> : CU-DAR001 Dart Helicopters Services	<b>Drawing Name</b> : 206L FWD X-TUBE
<b>Job Number</b> : 45620	
<b>Estimate Number</b> : 13220	
<b>P.O. Number</b> :	<b>Part Number</b> : D206667103TRN
<b>This Issue</b> : 09/02/2009 <b>S.O. No.</b> :	<b>Drawing Number</b> : D206-667-143 REVC <b>BL</b>
<b>Prsht Rev.</b> : NC	<b>Project Number</b> : N/A
<b>First Issue</b> : / / <b>Type</b> : CROSSTUBES	<b>Drawing Revision</b> : C
<b>Previous Run</b> : 44591	<b>Material</b> :
<b>Written By</b> :	<b>Due Date</b> : 16/02/2009 <b>Qty:</b> 1 <b>Um:</b> Each
<b>Checked &amp; Approved By</b> : <u>JUD 09.02.09</u>	
<b>Comment</b> : Est Rev:A 08-03-06 new issue DD verified by:ec Est Rev B 08.04.02 removed polish EC verified by DD	

## Additional Product

Job Number:



<b>Seq. #:</b>	<b>Machine Or Operation:</b>	<b>Description :</b>
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1.0	D6002115	Crosstube Material
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**Comment:** Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part number Description Batch

1 D6002-115 Crosstube **B34684**

Check OD = 2.250"; ID = 1.750"

**G.M 09.02.11 ①**

2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
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**Comment:** MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand &amp; install plugs DT8534 on both ends as per Folio FA087

2-Turn first side as per Folio FA087

3-File down transition lines smooth.

**G.M 09.02.11 ①**

3.0	QC1	INSPECT ALL DIM TO DIM SHEET
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**Comment:** INSPECT ALL DIM TO DIM SHEET**G.M 09.02.11 ①**

4.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
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**Comment:** MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA087

2-File down transition lines smooth.

3-Remove sand and plugs

**G.M 09.02.11 ①**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Monday, 09/02/2009 12:40:52 PM  
User: Julie Dawson

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 206L FWD X-TUBE

Job Number: 45620

Part Number: D206667103TRN

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

Q.M 09.02.11 (2)

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

Avn 9-2-12

(1)

7.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

MB

09-02-12

(1)

8.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

Q.M 09.02.12 (1)

9.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and stock in kanban rack

Location: X-tube cell

MB 09-02-12

(1)

10.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

09/02/12 (1)

Job Completion



MF 09-02-12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b> H5620
<b>Description:</b> Crosstube Assembly (206L High Fwd)		<b>Part Number:</b> D206-667-143
<b>Inspection Dwg:</b> D206-667-143 <b>Rev:</b> B		<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.245	✓			
	1.982	+0.005/-0.000	1.987	✓			
	2.019	+0.005/-0.000	2.024	✓			
	2.058	+0.005/-0.000	2.063	✓			
	2.097	+0.005/-0.000	2.102	✓			
	2.136	+0.005/-0.000	2.141	✓			
	2.176	+0.005/-0.000	2.181	✓			
	2.201	+0.005/-0.000	2.206	✓			
	0.125	+/-0.010	0.125	✓			
	0.400 x 30°	+/-0.010	0.400 x 30°	✓			
	R0.063	+/-0.010	R0.063	✓			
	R0.500	+/-0.010	R0.500	✓			
	4.438	+/-0.030	4.438	✓			
SIDE B	104.98	+/-0.020	104.980	✓			
	2.240	+0.005/-0.000	2.245	✓			
	1.982	+0.005/-0.000	1.987	✓			
	2.019	+0.005/-0.000	2.024	✓			
	2.058	+0.005/-0.000	2.063	✓			
	2.097	+0.005/-0.000	2.102	✓			
	2.136	+0.005/-0.000	2.141	✓			
	2.176	+0.005/-0.000	2.181	✓			
	2.201	+0.005/-0.000	2.206	✓			
	0.125	+/-0.010	0.125	✓			
	0.400 x 30°	+/-0.010	0.400 x 30°	✓			
	R0.063	+/-0.010	R0.063	✓			
	R0.500	+/-0.010	R0.500	✓			
	4.438	+/-0.030	4.438	✓			

<b>Measured by:</b> am	<b>Audited by:</b> AUM	<b>Prototype Approval:</b>	N/A
<b>Date:</b> 09.02.11	<b>Date:</b> 9-2-12	<b>Date:</b>	N/A

Rev	Date	Change	Revised by	Approved
A	04.05.06	New Issue (P/O D206-667-103)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Item	Qty -143	Part Number	Description
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

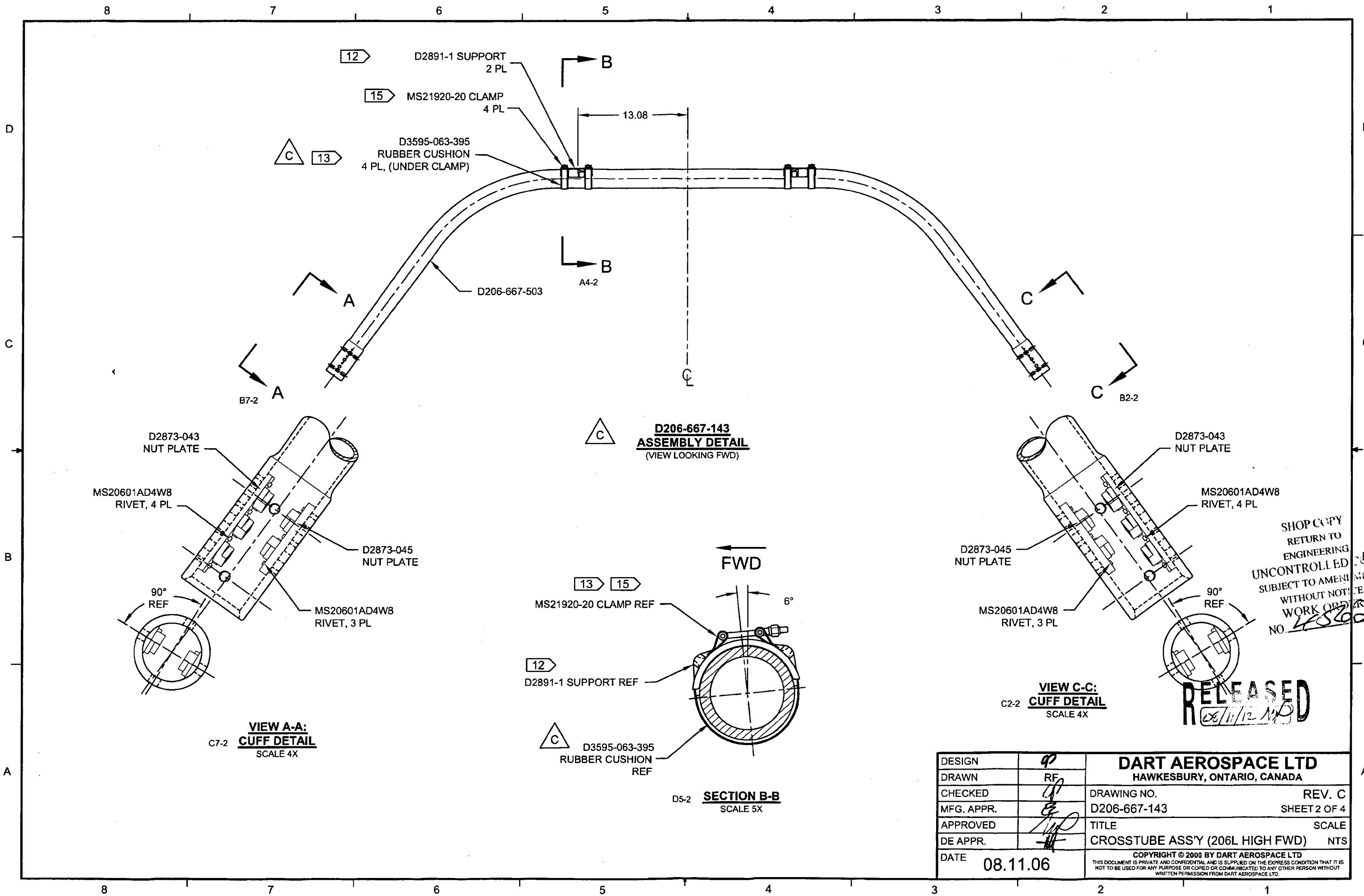
GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6002-115  
FINISHED LENGTH = 104.98±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 15.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. C
MFG. APPR.	RF	D206-667-143	SHEET 1 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
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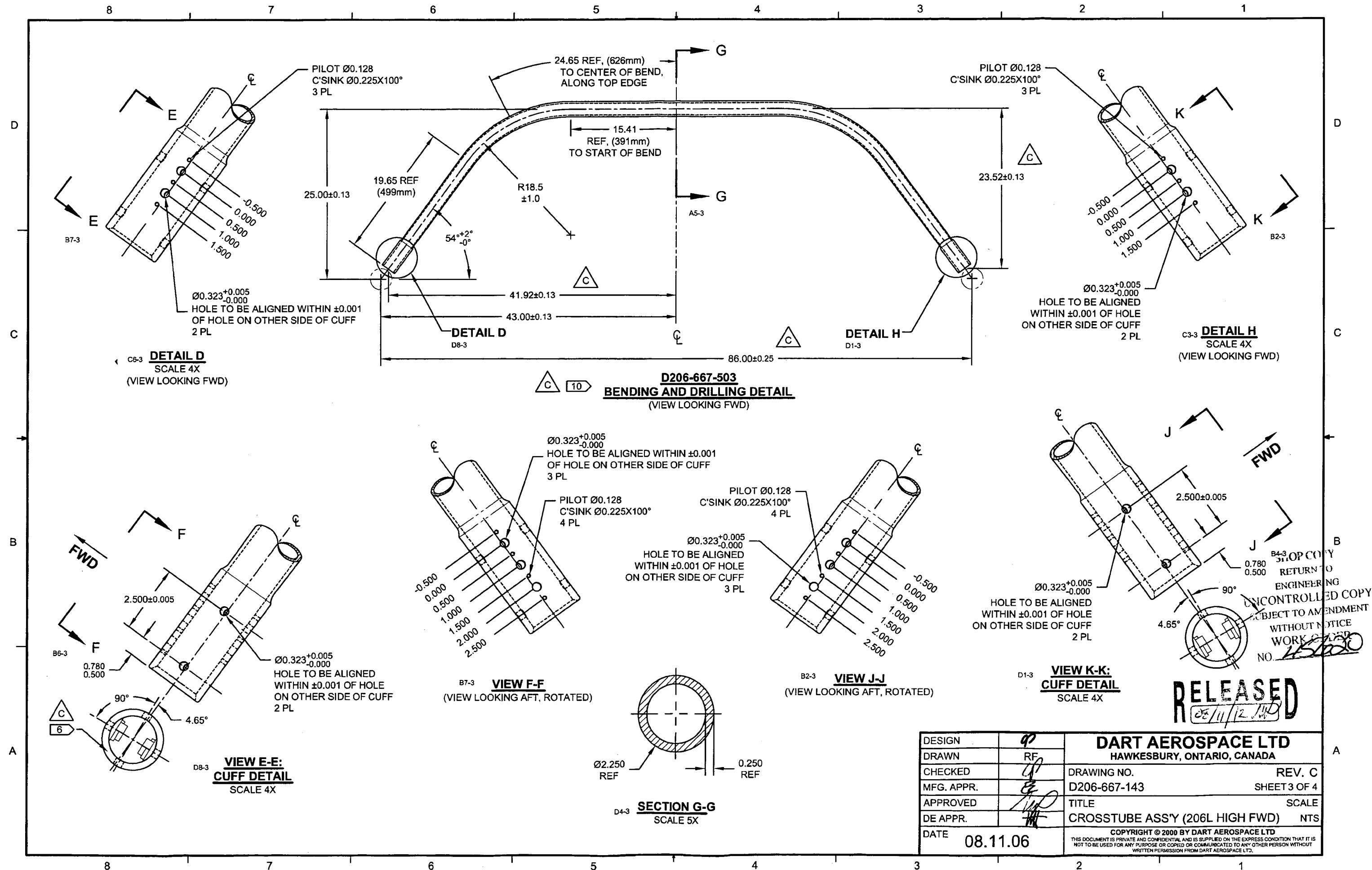


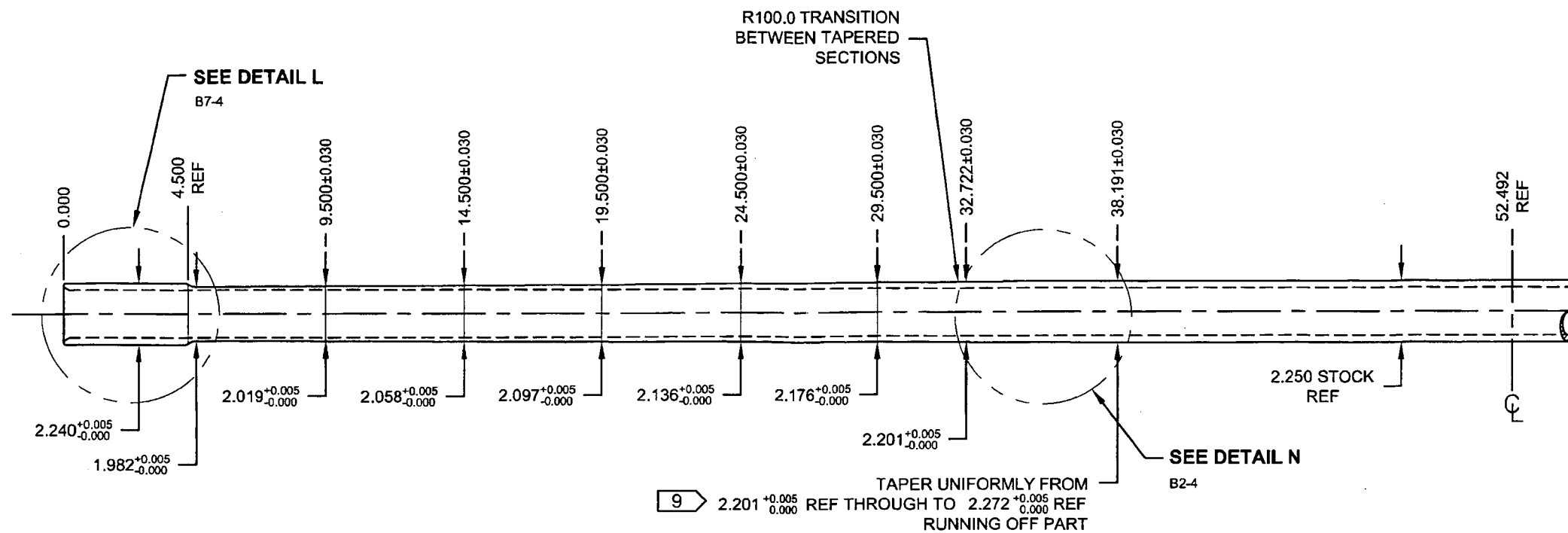
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08/11/12

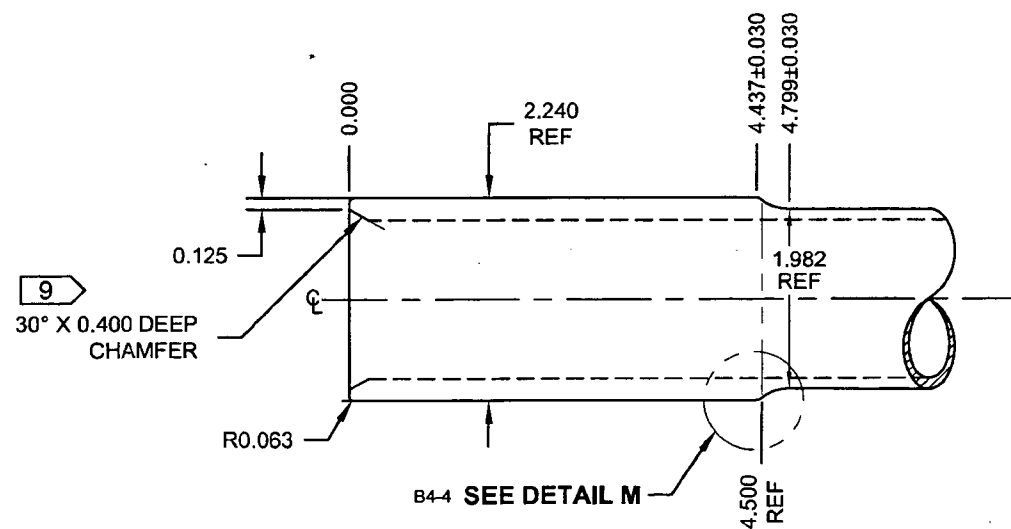
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MFG. APPR.	RF	D206-667-143	SHEET 2 OF 4
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DE APPR.	RF	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
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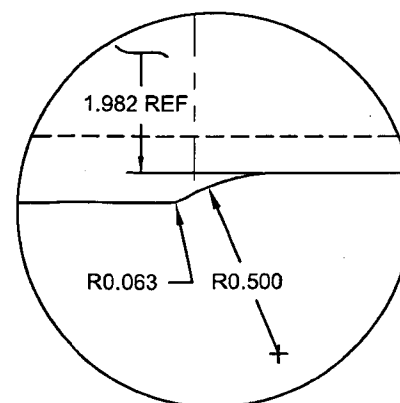




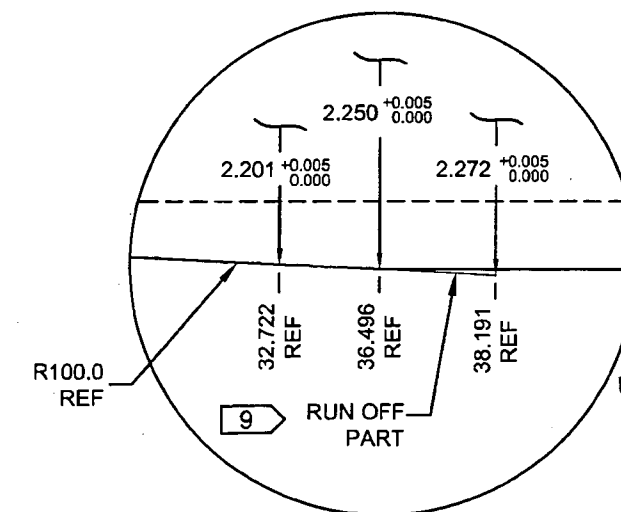
**TURNING DETAIL**



**DETAIL L:  
CROSSTUBE CUFF**  
D7-4  
NOT TO SCALE



**DETAIL M:  
CUFF TRANSITION**  
A6-4  
NOT TO SCALE



**DETAIL N:  
TAPER RUN-OFF**  
C4-4  
NOT TO SCALE

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MFG. APPR.	GP	D206-667-143	SHEET 4 OF 4
APPROVED	GP	TITLE	SCALE
DE APPR.	GP	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
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